ATOMIC ENERGY newsletter®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

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Contract to construct special power excursion reactor test facility (SPERT II) at USAEC's reactor testing station, Idaho Falls, Idaho, has been awarded Paul Hardeman, Inc., Los Angeles. Hardeman's bid of $1,205,117 was lowest of seven submitted. Work calls for construction of a reactor building, non-nuclear portions of the reactor system, and utility services. (Hardeman is currently constructing the SPERT III reactor at this installation under a $1,580,000.00 contract; it started this work late in 1956.) (Other BUSINESS NEWS, p. 2 this LETTER.)

Commercial preservation of foods by ionizing radiation, or extension of their shelf and storage life, may become feasible by 1960 according to first report of Interdepartmental Committee on Radiation Preservation of Foods. Committee, made up of seven government agencies, notes that biggest problem now awaiting solution is the off-color, flavor and odor effects of irradiation, especially in sterilization doses. When such effects occur, smaller doses to pasteurize and extend shelf life, rather than full sterilization, may be a solution. Positive approaches to these problems will be possible when the Army's ionizing radiation center at Lathrop, Calif., is in operation in 1959; an accelerator and reactor will be available there for full-scale food processing. Some seventy private firms are also in this program. (Other BOOKS, REPORTS, p. 3 this LETTER.)

Research into controlled energy from fusion reactions has been underway by General Electric Co. for more than a year and is of substantial proportions, GE research director Guy Suits recently told International Symposium on Science, Industry and Education. It may be five years before a realistic appraisal is possible, Dr. Suits stated, with ten years as the minimum time for determining its technical feasibility. He hoped for pilot plant operation in twenty years. (Other RESEARCH NEWS, p. 5 this LETTER.)

Now being produced by Marvel-Schebler Products (div. of Borg Warner Corp.) Chicago, are control rod drive mechanisms for positioning rods in nuclear reactor cores. Company has order to supply these units for the pressurized water reactor to be used at Shippingport, Pa., nuclear power plant. (Other PRODUCTS, PROCESSES, INSTRUMENTS, p. 3 this LETTER.)

Option to acquire 51% interest in mining properties of Wyoming Uranium Corp. has been exercised by Phelps Dodge Corp., second largest U.S copper producer. Wyoming Uranium's properties consist of undeveloped, unpatented mining claims and uranium mining leases, located principally in Fremont County, Wyoming. Phelps Dodge, after about a year of exploratory drilling, said estimated reserves of uranium ore on the properties total about 200,000-tons of approximately 0.4% uranium oxide, which the company feels is adequate for an underground mining operation of modest size. Plans for production, however, are indefinite the firm stated, since there is a current shortage of milling capacity in the general area. Uranium ore buying station of the USAEC at Riverton, Wyoming, has recently been closed. (Other RAW MATERIALS news, p. 4 this LETTER.)

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ATOMIC ENERGY BUSINESS NEWS...

NEW ATOMIC ENERGY GROUP FORMED BY UTILITIES:- Southwest Atomic Energy Associates, a new group to investigate nuclear energy potentialities in the region of the subscribing firms, has been formed by 13 electric companies in Kansas, Louisiana, Arkansas, Mississippi, Missouri, and Oklahoma. A four year, $5 million research and development program is being considered. President of Southwest Atomic is J. Robert Welsh, who heads Southwestern Gas & Electric Co. Vice-presidents of the group are W. O. Turner, who is president of Louisiana Power & Light Co., and Gordon Evans, the president of Kansas Gas & Electric. In addition to these companies, which are members of the group, the others making it up include Arkansas-Missouri Power Co.; Central Louisiana Electric Co.; Empire District Electric Co.; Gulf States Utilities Co.; Mississippi Power & Light Co.; Missouri Public Service Co.; New Orleans Public Service, Inc.; Oklahoma Gas & Electric Co.; and Public Service Co. of Oklahoma.

HEAVY WATER SOLD ABROAD BY USAEC:- Both Sweden, Norway and Australia are now obtaining heavy water from the USAEC whose Du Pont-operated Savannah River Plant, on stream for some time, has adequate capacity to make these deliveries. In Sweden, Aktiebolaget Atomenergi (Swedish Atomic Energy Co.) has received a large part of its order for use in a prototype reactor for district heating in a Stockholm suburb. Price is $28 per lb.; total delivery will be 26 metric tons (28.6 U.S. tons)..... Norway's Atomic Energy Institute has ordered 16 metric tons of heavy water from the USAEC; price, including shipping, was approximately $994,000. Payment is to be made in installments. Material, needed for the experimental reactor under construction at Halden, had originally been ordered from Holland (8-tons) and Norsk Hydro (7-tons), but could not be delivered by the sources for the reactor's scheduled operating start-up this Fall. (The Institute has also recently contracted to purchase about 8-tons of natural uranium fuel elements, aluminum alloy clad, from the U. K. Atomic Energy Authority).... Some 11-tons of heavy water will be supplied Australia's Atomic Energy Commission at $28 per lb. by the USAEC under contract signed by representatives of the U.S. and Australia last week. The heavy water is for a materials testing and research reactor being constructed by the Australian Commission at its Lucas Heights research establishment near Sydney. This is the first nuclear reactor to be constructed in that country.

BELGIAN-U.S. NUCLEAR COMBINE TO SELL TO EURATOM COUNTRIES:- The U.S. firm Nuclear Development Corp. of America, White Plains, N.Y., and the Belgian firms Societe Generale des Minerais, Brussels, and Societe Belge pour l'Industrie Nucleaire, have formed NDA Europe as a first step to participate in the potential nuclear power business of the Euratom countries. (The Euratom plan involves projected nuclear power plants with total generating capacity of 15 million electrical kilowatts to be built in the next ten years by the six nations making up the European Atomic Energy Community (Euratom): France, W. Germany, Italy, Belgium, Holland and Luxembourg.) Decision of Nuclear Development Corp. of America to go after Euratom business was prompted by greater nuclear power market there as compared with U. S., mainly from price differentials of coal, oil and other fossile fuels.

FUEL ELEMENT CONTRACT AWARDED:- Contract to supply 5,000 nuclear fuel elements of 93% enriched uranium-aluminum alloy for the research reactor at Brookhaven National Laboratory, Upton, N.Y., has been awarded Sylvania-Corning Nuclear Corp. by Associated Universities, Inc., the educational corporation operating Brookhaven. The contract, totaling about $250,000, was the largest commercial fuel element order ever placed in this country. It followed the successful test operation since the first of this year of 278 elements of the enriched uranium type, which are replacing the present natural uranium slugs. Sylvania-Corning's Hicksville, N.Y. facility will supply the fuel elements.

TRAINING REACTORS TO BE PRODUCED:- Under agreement made by AMF Atomics (div. of American Machine & Foundry) N.Y., and General Nuclear Engineering Corp., Dunedin, Fla., training reactors will be designed and produced for educational and industrial use. Agreement calls for design work by GNEC, with construction by AMF, of ten kilowatt water-and graphite-moderated reactors. Design, an improved version of the Argonaut type developed at USAEC's Argonne National Laboratory, is characterized by minimum excess reactivity, low fission-product content, and self-limitation of power.

SITE WORK STARTS ON FIRST U.S. INDUSTRIAL NUCLEAR TEST REACTOR:- Ground breaking ceremonies yesterday (July 8) by Westinghouse Electric Corp., at Waltz Mill, Pa., marked initial work on 850-acre site there which the company is developing as a nuclear center and which will be location of its 20,000-kilowatt reactor.

NEW PRODUCTS, PROCESSES, INSTRUMENTS...for nuclear lab & plant...

PRODUCTS FROM THE MANUFACTURERS:- Mobile source unit, model LC-9, consists of shielded source container with cart especially designed for ease of handling. Storage compartment of unit, which is surrounded by minimum of 2-in. of lead, is 6-in. high and 3-in. in diameter. --Technical Associates, Burbank, Calif.

Source calibrator, model SC-56, is designed for quick determination of activity content, in microcuries or millicuries, of liquid or solid sources of various radioactive isotopes. Activities from 5-microcuries to 500-millicuries can be measured in one of the two well-type ionization chambers supplied with the unit. --Tracerlab, Inc., Waltham, Mass.

Mobile monitor, for continuous recording of radiation level from fallout or other forms of radioactive contamination, is a complete unit providing permanent record. Design is based on Oak Ridge-developed monitoring unit. --Victoreen Instrument Co., Cleveland, Ohio.

PRODUCT NOTES:- Beryllium oxide crucible wash, which may be used to coat graphite crucibles for melting uranium-based alloys for nuclear applications, has been developed by Beryllium Corp., and Westinghouse Electric Co. Use of the wash is said to sharply reduce carbon contamination of the melt. Product is being marketed by Beryllium Corp., Reading, Pa.

Protective mask, incorporating two filter sections, is said to give protection from radioactive particles as well as a wide variety of war gases. Mask, produced by Mine Safety Appliances Co., Pittsburgh, Pa., has two pouches, one on each side of the facepiece, in which are pads of gas-aerosol filter material composed of charcoal, glass fiber, and plastic material serving as filter media.

The second "package" power reactor is now planned for a site at Fort Greely, near Fairbanks, Alaska, by the Army's Corps of Engineers, who arranged for construction of first such unit at the Engineer Center, Fort Belvoir, Va.

PROCESS NOTES:- Now in limited pilot plant operation by Metal Hydrides, Inc., Beverly, Mass., is production of super-pure thorium metal in quantities of about 1-lb. per week. Using reactor grade thorium as raw material, final product is believed of higher purity than previously obtainable. Company expects to increase production to 10-lbs. per week shortly. The very high purity metal finds use in nuclear reactor and fuel element research. In its present limited output, it is being sold at approximately $500 per lb.

Hot test loop, for checking special valves used in nuclear reactors, is now in operation at Crane Company's works, Chicago. Nuclear reactor coolant valves from 4-in. through 16-in. can be tested with the loop. Designed primarily for production testing of completed valves, and constructed at cost of more than $150,000, one of the loop's three sections will be equipped so it may be used for engineering research. (Hot test loop gets its name from extreme conditions under which it is operated: water is carried under pressures and temperatures simulating various reactor conditions.)

A radiation shielding material made of granulated lead in paraffin wax base that can be molded into various shapes is being produced commercially by California Ink Co., Inc., Berkeley, Calif. Developed at the radiation laboratories of the University of California, the shielding has been used in brick form at the laboratory.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Nuclear Engineering, edited by Charles F. Bonilla. Contributions by twelve authorities in their fields; a comprehensive text and reference volume. One of this company's series in nuclear engineering. 850 pages. --McGraw-Hill Book Co., Inc., New York 36, N.Y. ($12.50)

Experimental Boiling Water Reactor. Detailed description of the experimental boiling water reactor now operating at Argonne National Laboratory. (First in the USAEC's nuclear technology series.) 233 pages. --Sup't. of Documents, Wash. 25, D.C. ($2.25)

NOTES:- Fourth edition of "British Nucleonic Instruments, 1957", has now been published by the nucleonic group of the Scientific Instrument Manufacturers' Association. It may be obtained from the Association at 20 Queen Ann St., London W1, England at 10s 6d.

A colored documentary film showing British nucleonic products has been produced by British Atomic News, Ltd., 3 Albermarle St., London W1, England. It is intended as a sales film to be shown to potential foreign customers.

RAW MATERIALS...prospecting, mining, marketing...

UNITED STATES:- Capacity of its Albany, Oregon, zirconium plant will be expanded by Wah Chang Corp. to 550,000 lbs. per year from its present 400,000 lbs. per year capability. About $1 million will be put into new facilities; the current plant, which cost $2 million, was built in 1956. Wah Chang also operates a U. S. Bureau of Mines zirconium plant at Albany with annual capacity of 350,000 lbs. Its entire output of the metal is being taken by the USAEC.

Uranium exploration contracts recently let by the Defense Minerals Exploration Administration include $45,572 to Lisbon Uranium Corp., Colo.; $29,475 to Universal Metals Co., Colo.; $53,444 to New Idria Mining & Chemical Co., Colo.; $21,508 to J. W. Walsh; $25,441 to Dalmid Oil & Uranium, Inc., Utah; $73,600 to Bleak Uranium, Inc., Utah; $64,784 to W. H. Gaddis, Utah; and $18,316 to C. M. Coleman, Utah.

CANADA:- First shipment of uranium precipitates was made last fortnight by Rayrock Mines, marking entry into production of 11th uranium mill in Canada. Mine officials report an extraction of 97.4%, compared with the 94% recovery that earlier test work indicated might be expected. Capacity of the mill is 175-tons daily which may possibly be increased to 200 tons..... Lorado Uranium Mines, in the Beaverlodge area, now milling 375 tons daily, plans an increase to possibly 500 tons. Mill feed is currently coming from three mines: Lorado's own property, Cayzor Athabaska, and Lake Cinch. Mine officials note that with higher milling rate, shipments of National Explorations and Rix-Athabasca can be accepted. Lorado holds Government contract for $64,480,000 in uranium concentrates.

SOUTH AFRICA:- Production of uranium increased in South Africa during 1956 according to the annual report just issued of the Bank for International Settlements. Working profits from uranium production rose in 1956 by 40% from SA £17.6 million to SA £24.7 million. The latter figure is equal to slightly over half the profits from gold production in 1956 of the mines, where the same ores yield both uranium and gold.

MEETINGS, COURSES, CONFERENCES...

SYMPOSIUM SCHEDULED:- Maritime Administration and USAEC have scheduled a joint symposium for shipping lines in Washington July 30 on nuclear propulsion of merchant ships. Meeting will discuss state of the program; operational problems in foreign commerce; and lines' plans to use nuclear powered ships. Government contractors, government agencies such as the Coast Guard and Public Health Service, and private groups such as the American Institute of Marine Underwriters and the American Bureau of Shipping also will take part in the symposium.

CONFERENCE ON REACTOR SAFETY:- Technical conference on reactor safety has been set up for October 31 in New York under sponsorship of American Nuclear Society, Atomic Industrial Forum, and USAEC. Conference objectives are to acquaint the private atomic energy industry with information on safe operation of nuclear reactors.

DUTCH EXHIBITION OPENS:- The international nuclear energy exposition known as "Het Atoom" opened last fortnight (July 1) at Schiphol Airport, near Amsterdam, Holland. It will run until September 15. Exhibitors are demonstrating commercial uses of nuclear energy, and include firms from U. S., U. K., Holland and other countries.

LICENSES, PERMITS ISSUED...other news

PERMITS ISSUED:- Aerojet-General Nucleonics, San Ramon, Calif., has received USAEC permits for construction of 17 low-power research reactors and modification of an existing reactor to increase its power level. The reactors will all be of 100-milliwatt capacity, except one which will be a 5-watt modification; in addition, an existing 100-milliwatt model will be modified to 5-watt capacity.

Curtiss-Wright Corp. has received permit from the USAEC to construct pool-type nuclear research reactor at Quehanna, Pa. Reactor will be at C-W's new research center there.

General Dynamics Corp. has been granted USAEC permit for its experimental nuclear facility near San Diego, Calif. Unit will be at the company's new physical sciences laboratory being erected there.

LICENSE NEWS:- Hartford Electric Steel Corp., Hartford, Conn., was cited by the USAEC for alleged violation of license to use radioisotopes. Alleged violation claim of USAEC was that four employees of the firm had received radiation doses in excess of permissible limits for a 13-week period, and that the overexposures had not been reported.

ATOMIC ENERGY PATENT DIGEST...latest grants made

ISSUED June 25, 1957; TO PRIVATE ORGANIZATIONS OR INDIVIDUALS:- (1) Radiation sensing and measuring device. No. 2,797,332 to Librascope, Inc., Glendale, Calif. (2) X-ray generator using radioactive material emitting beta particles. No. 2,797,333 to Armour Research Fuondation, Chicago, Ill.

ISSUED June 25, 1957; TO GOVERNMENTAL ORGANIZATIONS:- (1) Remote adjustment of automatic control system. No. 2,797,050 to USAEC. (2) Carbon burner. No. 2,797,081 to USAEC. (3) Process for reducing a uranium tetrahalide. No. 2,797,142 to USAEC. (4) Phosphate separation method of treating uranium-vanadium ores. No. 2,797,143 to USAEC. (5) Process for producing massive zirconium metal. No. 2,797,160 to USAEC. (6) Filter media for handling particles in submicron range. No. 2,797,163 to USAEC. (7) Trigger circuit. No. 2,797,319 to USAEC. (8) Crystal controlled oscillator using transistors. No. 2,797,328 to USAEC.

ISSUED July 2, 1957; TO PRIVATE ORGANIZATIONS OR INDIVIDUALS:- (1) Leaching uranium from ores containing sulphides. No. 2,797,977 to Canadian Patents Development, Ltd., Ottawa, Canada.

ISSUED July 2, 1957; TO GOVERNMENTAL ORGANIZATIONS:- (1) Determining concentration of uranium hexafluoride in a gas stream. No. 2,797,983 to USAEC. (2) Preplating treatment for beryllium and its alloys. No. 2,798,036 to USAEC. (3) Recovering uranium from acqueous solutions. No. 2,798,084 to USAEC. (4) Portable X-ray or gamma source. No. 2,798,164 to USAEC. (5) Photomultiplier circuit for use under highly transient light intensities. No. 2,798,165 to USAEC. (6) Accelerator target positioner. No. 2,798,178 to USAEC. (7) Pumping ion source. No. 2,798,181 to USAEC.

RESEARCH NEWS...in the nuclear field...

GRANTS MADE FOR RESEARCH REACTORS:- Financial assistance of $350,000 each to Japan, Portugal, and Venezuela for nuclear research projects there is to be granted from Mutual Security Administration funds following recent USAEC approval. This brings total of such grants to seven, and total monies so allotted to $2,450,000. Previous grants had been made to Brazil, Denmark, The Netherlands, and Spain. Design and fabrication of the nuclear reactors for these projects is being done by U. S. companies: AMF Atomics for Japan and Portugal; General Electric for Spain and Venezuela; Babcock & Wilcox for Brazil; Foster-Wheeler Corp. for Denmark; and American Car & Foundry for The Netherlands.

ELIMINATION OF STRONTIUM STUDIED:- Studies conducted at Montefiore Hospital, Bronx, N. Y., have indicated that 80% of strontium-90 taken in orally by humans is not absorbed into blood, tissue or bone. It was also found that an additional 10% is eliminated after being temporarily absorbed. The administration of calcium gluconate and ammonium chloride, either separately or (more effectively) in combination, was also found to assist in increasing the amount of strontium-90 which the body throws off. Work was under direction of Dr. Daniel Laszlo, chief of the neoplastic division at Montefiore.

RESEARCH CONTRACTS EXTENDED:- Two year extension of University of Tennessee's agricultural research program at Oak Ridge, Tenn., has been granted by the USAEC. Work at Oak Ridge, which has been conducted by U-T since May, 1948, covers laboratory and domestic animal research in connection with metabolism and biological effects of fission product and other radioactive elements; use of isotopes in plant research; and other studies..... Oak Ridge Institute of Nuclear Studies has now been given five-year extension of its USAEC contract to administer the USAEC's research and education programs at Oak Ridge. Institute, an educational corporation of thirty-five southern universities, has handled these projects for the USAEC since March, 1947.

PEOPLE...in nuclear energy activities

Thomas E. Murray has been made special consultant to the Joint Congressional Committee on Atomic Energy. Mr. Murray had been a USAEC Commissioner.

Jack M. Medzorian has been named controller of Baird-Atomic, Inc., Cambridge, Mass., manufacturer of nucleonic and electronic apparatus. He had been chief accountant of the company.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

July 9th, 1957